

**ONSHORE OIL AND GAS GEOPHYSICAL EXPLORATION
SURFACE MANAGEMENT REQUIREMENTS (PUBLIC)**

CONDITIONS of APPROVAL

**Anadarko Petroleum Company, Powder River 2D Seismic Survey
Environmental Assessment (EA), WY-070-EA11-343
Buffalo Field Office, Bureau of Land Management**

BLM Site Specific Conditions of Approval

Wildlife:

1. No entry will be allowed in the Fortification Creek Planning Area big game crucial range from November 15 through April 30 (winter); and May 1 – June 30 (parturition).
2. No surface disturbing activities are permitted within 2 miles of known sage-grouse leks, or within the boundaries of designated core/connectivity between March 1 and June 15, prior to completion of a greater sage-grouse lek survey.
3. No surface disturbing activity shall occur within ½-mile of all identified raptor nests from February 1 through July 31, annually, prior to a raptor nest occupancy survey for the current breeding season.

Cultural:

1. All identified cultural sites in the project area shall be avoided by at least 30 meters (100 ft.) by all geophysical operations.

BLM Standard Terms and Conditions

1. The operator shall contact the Buffalo Field Office at least 48 hours prior to the start of the project to schedule a pre-work conference. The crew supervisor and additional crew chiefs (if needed) will attend the pre-work conference to discuss the terms and conditions for this operation. Any reclamation required for incidents outside the scope of the design features will comply with the reclamation standards in the Appendix A, Reclamation Requirements.
2. The operator's representative will attend a meeting with the BLM to discuss cultural artifacts and potential penalties for tampering with cultural artifacts. The meeting can be held as part of the prework conference.
3. The operator will obtain permission from right-of-way holders prior to drilling and setting charges within authorized limits of the rights-of-way.
4. Existing routes and trails will be used to the maximum extent possible. The heliportable drill or other BLM approved technique will be used on the areas with steep slopes and rough terrain. Attempts to traverse irregular, soft, or steep slopes and terrain by all vehicles and equipment shall be kept to a minimum to avoid excessive rutting, soil erosion, excessive crushing of vegetation, and excessive visual impacts. Vehicular travel along the flagged lines

will be kept to a minimum and be in a zigzag pattern between source points to reduce straight line disturbances. This procedure does not apply to vehicles following trails or roads.

5. Vehicular travel shall be suspended when ground conditions are wet enough to cause rutting or other noticeable surface deformation and severe compaction. As a general rule, if vehicles or other project equipment create ruts in excess of 4-inches deep when traveling cross-country over wet soils, the soil shall be deemed too wet for vehicular use.
6. The staging area(s) will be situated with good, safe access to county roads or state highways. The fuel truck for the helicopter will also be used at the staging area(s).
7. The staging area(s) shall be kept clean and free of litter. Appropriate human waste facilities will be provided and properly maintained. Such waste facilities shall be removed from the site upon completion of the project.
8. Roads, routes, and trails will not be constructed for geophysical projects.
9. Operators of vehicles and equipment shall be responsible for not damaging fences and keeping gates as found. As a last resort, should a fence be cut for access, that fence must be repaired to former or better condition, immediately after equipment has passed through.
10. Shot holes will be backfilled and plugged, in accordance with state regulations, after they are loaded with the explosive charge. Any cuttings resulting from shot hole drilling and not used in backfilling the shot hole will be scattered about the immediate area to blend with natural terrain and reduce visual impacts.
11. Geophysical equipment may encounter congested areas with trees requiring one or more trees to be removed and or limbed. If such action is needed then the tree(s) and or limb(s) shall be less than eight (8) inches at diameter breast height (dbh) or at the base of the branch. Trees to be cut or limbed which are located adjacent to public roads, communities and or public facilities shall be immediately cut into smaller pieces so that it is not aesthetically displeasing and dispersed within the immediate vicinity.
12. Any and all tire tracks one hundred feet (100'), leading away from an established dirt or two track road situated on public lands, will be hand raked to blend into the surrounding soil surface.
13. If soil is disturbed to the extent that erosion is likely or visual impacts are readily apparent, the disturbed areas will be rehabilitated utilizing the following techniques:

Ruts and vehicle tracks will be filled with soil and/or obliterated by either hand raking or similar method. When completing this work, care will be taken to minimize disturbance to surrounding lands that have not been disturbed. All areas where rehabilitation work is accomplished will be reseeded with the seed mixtures specified below:

Seed Mix

Loamy Ecological Site Seed Mix 10-14" Precipitation Zone

Species	% in Mix	Lbs PLS*
Western Wheatgrass (Pascopyrum smithii)/ Thickspike Wheatgrass (Elymus lanceolatus ssp. lanceolatus)	30	4.8
Bluebunch Wheatgrass (Pseudoroegneria spicata ssp. Spicata)	10	1.2
Green needlegrass (Nassella viridula)	25	3.0
Slender Wheatgrass (Elymus trachycaulus ssp. trachycaulus)	20	1.2
Prairie coneflower (Ratibida columnifera)	5	0.6
White or purple prairie clover (Dalea candidum, purpureum)	5	0.6
Rocky Mountain beeplant (Cleome serrulata) /or American vetch (Vicia americana)	5	0.6
Totals	100%	12 lbs/acre

*PLS = pure live seed

*Northern Plains adapted species

*Double this rate if broadcast seeding

This is a recommended seed mix based on the native plant species listed in the NRCS Ecological Site descriptions, U.W. College of Ag., and seed market availability. A site-specific inventory will allow the resource specialist to suggest the most appropriate species, percent composition, and seeding rate for reclamation purposes.

The seeded area should be hand raked to assure the seed is covered with approximately ¼ to ½ inch of soil. This seeding should be accomplished during the late fall, in October or November, before moisture conditions become prohibitive.

The seed shall be certified, pure live seed, and seed tags must be available if requested by the authorized officer. Certified weed free seed is to be used to rehabilitate disturbed land.

14. Setbacks and Buffers: the operator will adhere to setbacks or “buffer zones” that are set forth in the following tables.

Object	½ lb	1 lb	2 lbs	3 lbs	5 lbs	6 to 10 lbs	11 to 15 lbs	16 to 20 lbs
Pipeline less than 6” diameter	50’	100’	150’	150’	200’	250’	300’	400’
Pipeline 6” to 12” diameter	75’	150’	200’	200’	300’	400’	500’	600’
Pipeline greater than 12” diameter	100’	200’	250’	250’	300’	500’	600’	800’
Telephone line	20’	20’	30’	40’	40’	50’	50’	50’

Object	½ lb	1 lb	2 lbs	3 lbs	5 lbs	6 to 10 lbs	11 to 15 lbs	16 to 20 lbs
Railroad Track or main paved Highway	50'	100'	150'	150'	150'	220'	280'	350'
Electric Powerline (Shot holes not to exceed 200' depth)	75'	100'	200'	200'	200'	200'	250'	300'
Water wells, buildings, underground cistern, and all other similar objects	225'	300'	400'	450'	700'	800'	1000'	1200'
Brick and/or concrete block buildings	275'	400'	500'	600'	800'	1000'	1200'	1500'
Producing oil and gas well	250'	450'	600'	700'	800'	900'	1000'	1000'
Irrigation wells	500'	800'	1000'	1200'	1500'	2000'	2500'	2500'

Structures	Distance (ft)
Residences, Buildings, Concrete Base Structures	300
Water Wells	350
Concrete Water Pipeline	100
PVC/Plastic Water Pipeline	20
Oil or Gas Well	250
Oil or Gas High Pressure Pipelines	30
High Voltage Power Lines	0
Local Transmission Power Lines	0

15. No equipment, only foot traffic laying receiver lines, will be used in swampy/wetland areas.
16. If any unanticipated prehistoric or historic archaeological sites or paleontological sites are encountered during the geophysical work, the work shall stop and the appropriate BLM archaeologist at the Buffalo Field Office will be contacted. If a site is found, it will be recorded. The BLM will assume responsibility for evaluation and determination of significance, related to the historical or archaeological site. All known cultural resources sites will be avoided. Collection of any cultural or paleontological artifacts, bones or fossils from Federal lands is specifically prohibited.
17. Migratory bird nests will be avoided and not disturbed within ½ mile of the project from February 15 through July 31. Other wildlife restrictions may be applied on case by case basis.
18. All equipment will be power washed prior to entering federal lands to help mitigate the spread of noxious plants.

19. In order to minimize watershed damage, seismic activity will only be allowed during the period from May 15 to December 15. Exceptions to this limitation may be specifically approved by the authorized officer.
20. When fire conditions reach high, the helicopter, vehicles, and equipment will carry water, shovels, and other fire fighting equipment to extinguish any fires that are accidentally started by the seismic operations.
21. If oil, lubricants and other petroleum or man-made products are accidentally spilled onto the ground surface, the BLM Buffalo Field Office will be contacted and provided specific information about the spill and/or leak. Spills or leaks will be cleaned from the soil and any contaminated material will be bioremediated or disposed of at an authorized landfill.
22. All flagging, lath, pin flags, and similar materials used in the seismic project will be removed from public land and disposed of at an authorized landfill.
23. All Applicant-Committed Environmental Protection Measures documented in the applicant's NOI will be complied with in addition to these terms and conditions.

Site-Specific: Safety

1. APC, DG, and its helicopter operating agent assumes the responsibility for conducting a survey of pre-operations hazards to low-level flight for flight hazards attached to or on the BLM surface in the PR2SS area (wires, towers, guywires, blowing debris, etc.) prior to beginning geophysical survey. APC, DG, or its helicopter operating agent will maintain and update the hazards map/file/document throughout the geophysical survey.

Appendix A: RECLAMATION REQUIREMENTS, WY BLM

The following Reclamation Requirements apply to all surface disturbing activities, including BLM initiated activities, and must be addressed in each reclamation plan. These requirements also must be met prior to release of the bond and/or the reclamation liability. Where these Reclamation Requirements differ from other applicable federal, laws, rules, and regulations, those requirements supersede this policy. State and/or local statutes or regulations may also apply.

1. **Manage all waste materials:**
 - a. Segregate, treat, and/or bio-remediate contaminated soil material.
 - b. Bury only authorized waste materials on site. Buried material must be covered with a minimum of three feet of suitable material or meet other program standards.
 - c. Ensure all waste materials moved off-site are transported to an authorized disposal facility.
2. **Ensure subsurface integrity, and eliminate sources of ground and surface water contamination.**
 - a. Properly plug all drill holes and other subsurface openings (mine shafts, adits etc.).
 - b. Stabilize, properly back fill, cap, and/or restrict from entry all open shafts, underground workings, and other openings.
 - c. Control sources of contamination and implement best management practices to protect surface and ground water quality.
3. **Re-establish slope stability, surface stability, and desired topographic diversity.**
 - a. Reconstruct the landscape to the approximate original contour or consistent with the land use plan.
 - b. Maximize geomorphic stability and topographic diversity of the reclaimed topography.
 - c. Eliminate highwalls, cut slopes, and/or topographic depressions on site, unless otherwise approved.
 - d. Minimize sheet and rill erosion on/or adjacent to the reclaimed area. There shall be no evidence of mass wasting, head cutting, large rills or gullies, down cutting in drainages, or overall slope instability on/or adjacent to the reclaimed area.
4. **Reconstruct and stabilize water courses and drainage features.**
 - a. Reconstruct drainage basins and reclaim impoundments to maintain the drainage pattern, profile, and dimension to approximate the natural features found in nearby naturally functioning basins.
 - b. Reconstruct and stabilize stream channels, drainages, and impoundments to exhibit similar hydrologic characteristics found in stable naturally functioning systems.
5. **Maintain the biological, chemical, and physical integrity of the topsoil and subsoil** (where appropriate).
 - a. Identify, delineate, and segregate all salvaged topsoil and subsoil based on a site specific soil evaluation, including depth, chemical, and physical characteristics.
 - b. Protect all stored soil material from erosion, degradation, and contamination.
 - c. Incorporate stored soil material into the disturbed landscape.
 - d. Seed soils to be stored beyond one growing season, with desired vegetation.
 - e. Identify stockpiles with appropriate signage.
6. **Prepare site for revegetation.**
 - a. Redistribute soil materials in a manner similar to the original vertical profile.
 - b. Reduce compaction to an appropriate depth (generally below the root zone) prior to redistribution of topsoil, to accommodate desired plant species.
 - c. Provide suitable surface and subsurface physical, chemical, and biological properties to support the long term establishment and viability of the desired plant community.
 - d. Protect seed and seedling establishment (e.g. erosion control matting, mulching, hydro-seeding,

surface roughening, fencing, etc.)

7. **Establish a desired self-perpetuating native plant community.**
 - a. Establish species composition, diversity, structure, and total ground cover appropriate for the desired plant community.
 - b. Enhance critical resource values (e.g. wildlife, range, recreation, etc.), where appropriate, by augmenting plant community composition, diversity, and/or structure.
 - c. Select genetically appropriate and locally adapted native plant materials based on the site characteristics and ecological setting.
 - d. Select non-native plants only as an approved short term and non-persistent alternative to native plant materials. Ensure the non-natives will not hybridize, displace, or offer long-term competition to the endemic plants, and are designed to aid in the re-establishment of native plant communities.
8. **Reestablish complementary visual composition**
 - a. Ensure the reclaimed landscape features blend into the adjacent area and conform to the land use plan decisions.
 - b. Ensure the reclaimed landscape does not result in a long term change to the scenic quality of the area.
9. **Manage Invasive Plants**
 - a. Assess for invasive plants before initiating surface disturbing activities.
 - b. Develop an invasive plant management plan.
 - c. Control invasive plants utilizing an integrated pest management approach.
 - d. Monitor invasive plant treatments.
10. **Develop and implement a reclamation monitoring and reporting strategy.**
 - a. Conduct compliance and effectiveness monitoring in accordance with a BLM (or other surface management agency) approved monitoring protocol.
 - b. Evaluate monitoring data for compliance with the reclamation plan.
 - c. Document and report monitoring data and recommend revised reclamation strategies.
 - d. Implement revised reclamation strategies as needed.
 - e. Repeat the process of monitoring, evaluating, documenting/reporting, and implementing, until reclamation goals are achieved.